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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------|------------------|
| 10/618,614 | 07/15/2003 | Akira Takagi | 11-172 | 5364 |
| 23400 | 7590 | 03/14/2006 | EXAMINER CULBRETH, ERIC D | |
| POSZ LAW GROUP, PLC 12040 SOUTH LAKES DRIVE SUITE 101 RESTON, VA 20191 | | | ART UNIT 3616 | PAPER NUMBER |

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/618,614 | Applicant(s) TAKAGI ET AL. | |
| | Examiner Eric Culbreth | Art Unit 3616 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21,22 and 24-32 is/are allowed.
- 6) ☒ Claim(s) 1-9,13 and 15-19 is/are rejected.
- 7) ☒ Claim(s) 10,11,14 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 1/3/06. These drawings are not approved. In the new Figure 7, in block S118, there should be some indication that the entire region is being scanned (see block S118 in the original Figure 7).
2. The drawings are objected to because in Figure 8 "BAS" should be "BAG" on the right end of the Figure. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Amendment

3. The amendment filed 1/3/06 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: In the paragraph on page 4 beginning with "FIG. 1", in line 4 of the paragraph as amended 1/3/06, it is new matter to add "(including a driver)".

Applicant is required to cancel the new matter in the reply to this Office Action.

Specification

4. The disclosure is objected to because of the following informalities.

a. In the paragraph on page 4 beginning "FIG. 1" as amended on 1/3/06, in line 4 of the paragraph, it is contradictory to recite "a passenger (including a driver) on a passenger seat 3" (a driver would not be on a "passenger" seat as drivers and passengers go in conventional automobile terminology).

b. In the paragraph on page 8 beginning "Boundaries without a passenger" as amended 1/3/06, in line 2 of the paragraph, in line 2 of the paragraph, "s100" should be "S100" to be consistent with the drawings.

c. In the paragraph on page 11 beginning "The determination accuracy" as amended 1/3/06, in line 2 of the paragraph, "sensor 1 and 11" should be "sensors 1 and 11".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. Claims 4 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 4 and 23, it is inaccurate to recite, basically, that the passenger's information is a kind of passenger. Noting applicant's remarks, a better recitation might be that the passenger's information "is indicative of" or "represents" a kind of passenger.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 4, 7-9, and 18 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Niyogi et al US006345110B1, of record.

Niyogi et al discloses a safety apparatus for automobile crashes (i.e., it can alert a driver to hazards at column 3, lines 18-23) comprising an imaging means for picking up a passenger's head image including a passenger on a seat (i.e., the driver). The apparatus then has extracting means extracting passenger information based on the head (CPU 10 and memory 30; noting applicant's remarks that the examiner should not disregard the specification in interpreting "means plus function" language, means plus function can also include equivalents in the art; in fact, on pages 5-6 of applicant's

specification, the extracting means is image processing unit 5 which is a CPU just like Niyogi et al (i.e., applicant's unit on pages 5-6 uses bits, etc. and hence is a central processing unit)). The apparatus further has safety means for protecting the passenger from an automobile crash (some system to alert a driver at column 3, lines 20-21). Control means (the other processing circuitry at column 3, lines 19-21 that determines whether a hazardous condition is present and whether to alert a driver) controls the safety means. The extracting means stores reference images similar to head outlines, a part of which is an ellipse (the center of Figure 2; column 3, lines 10-15 where the training set of faces is stored), and detects a head ellipse from the passenger's head outputted from the camera (column 3, lines 10-12). The head ellipse is stored in the form of parameters defining the head ellipse (column 3, lines 10-12, the image from the camera is stored while it is processed, and stores the detected head ellipse in the form of parameters defining the head ellipse (column 3, lines 62-65, where images of the training set are stored as a number of pixels, and column 4, lines 14-21, where a sample image obtained by camera 20 is also considered a vector in n dimensional space, just like the training set, and hence stored by pixel number, which is a parameter defining a head ellipse as claimed). The extraction means judges whether the head ellipse stored in the form of the parameters is almost the same as one of the reference images (column 3, lines 23-30, where the closest image in the training set to the sample image is determined), and decides passenger's information responsive to one of the reference images when the head ellipse of the passenger's head image is almost the same as one of the reference images. Then the extraction means (CPU 10) outputs the

information to the safety means inasmuch as applicant's invention (i.e., at column 3, lines 18-23, output 40 of CPU 10 provided to other processing circuitry to determine whether to operate some safety means to alert a driver) (claim 1). As indefinitely recited in claim 4, the reference images represent kinds of passengers including the particular passenger sitting in the drivers seat. Regarding claims 7-9, the image of the passenger's head includes the detected head ellipse (claim 7), and as the camera takes a series sample images over time (Niyogi et al, column 3, lines 8-10), a region including the detected head ellipse is processed at a time to come (claim 8). Only a region with the head ellipse is processed (claim 9). The reference image is limited to the face or ellipse (claim 18).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 3, 5-6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niyogi et al in view of Farmer US006662093B2, of record.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Niyogi et al to include an air bag as the safety means in view of Farmer's airbag controller and system 32, 36 in order to protect the occupant in the case of an impact (Farmer, column 1, lines 23-33) (claim 3). In the combination, Farmer's extracting means determines the seat is vacant if no image is found to be

approximate (column 6, lines 53-55, where the system determines that an occupant is present, inferring that the system can also determine if an occupant is not present when there is an impact) (claim 5). Regarding claim 6, in the combination Farmer's camera 22 gets passenger information along a front-rear position in Figures 1-2, and regarding claim 19 Farmer in the combination does calculations (mathematical parameters) at column 4, lines 40-52 to determine the shape and position of the ellipse (i.e., in the at-risk area and the strength of the airbag, indicated by the shape of the ellipse).

10. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niyogi et al in view of Breed et al US006116639A, of record.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Niyogi et al to include imaging means at the side and front of the seat as taught by Breed's sensors 330 in Figure 9 and 132 in Figure 8 in order to detect features of the occupant from alternative equivalent positions to sensor positions in other Figures of Breed et al.

11. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niyogi et al in view of Waslowski et al US006781705B2, of record.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Niyogi et al to include a stereo range finder having two sensors as taught by Waslowski et al's system 11 with two reception units (sensors as broadly recited) E1, E2 in Figure 4a in order to eliminate interference of contrast edges

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on the sensed object (Waslowski et al, column 8, lines 1-4) (claim 16). Regarding claim 17, in the combination Niyogi et al, the primary reference, teaches at column 4, lines 52-60 another imaging means enlarging or reducing a picked up image in that the system includes a cropping window that can be adjusted with images with larger or smaller faces.

Allowable Subject Matter

12. Claims 21-22 and 24-32 are allowed.

13. Claim 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. Claims 10-11, 14 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wang US006996257B2 and Frischholz US006999606B1 show face recognition technology.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Culbreth whose telephone number is 571/272-6668. The examiner can normally be reached on Monday-Thursday, 9:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 571/272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Culbreth
Primary Examiner
Art Unit 3616

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Not Approved
EC 3/7/06

REPLACEMENT SHEET

FIG. 7

